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**TRANSMITTAL LETTER TO THE
UNITED STATES
DESIGNATED/ELECTED OFFICE
(DO/EO/US) CONCERNING A FILING
UNDER 35 U.S.C. 371**

U.S. APPLICATION NO.
(if known, sec 37 C.F.R.1.5)

09/701170

INTERNATIONAL APPLICATION NO.
PCT/FI99/00462

INTERNATIONAL FILING DATE
May 27, 1999

PRIORITY DATE CLAIMED
May 29, 1998

TITLE OF INVENTION
COMBINING SERVICES IN AN INTERNET-TYPE NETWORK

APPLICANTS FOR DO/EO/US

Marko TURPEINEN, Jukka MAUNO, Jorma MIETTINEN, Raimo MAKILA, Jaakko NIEMINEN, Timo SAARI

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US)
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A FIRST preliminary amendment.
☐ A SECOND or SUBSEQUENT preliminary amendment.
14. ☐ A substitute specification.
15. ☐ Entitlement to small entity status is hereby asserted.
16. ☒ Other items or information: PCT Request, Search Report

U.S. APPLICATION NO. (if known, see 37 C.F.R. 1.51) 0997701170		INTERNATIONAL APPLICATION NO. PCT/FI99/00462		ATTORNEY'S DOCKET NUMBER 107962	
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17. <input checked="" type="checkbox"/> The following fees are submitted: Basic National fee (37 CFR 1.492(a)(1)-(5)): Search Report has been prepared by the EPO or JPO\$860.00 International preliminary examination fee paid to USPTO (37 CFR 1.482)\$690.00 No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2))\$710.00 Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO\$1,000.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4)\$ 100.00 ENTER APPROPRIATE BASIC FEE AMOUNT =				CALCULATIONS		PTO USE ONLY	
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$			
Claims	Number Filed	Number Extra	Rate				
Total Claims	12- 20 =	0	X \$ 18.00	\$			
Independent Claims	3- 3 =	0	X \$ 80.00	\$			
Multiple dependent claim(s)(if applicable)			+ \$270.00	\$			
TOTAL OF ABOVE CALCULATIONS =				\$860.00			
Reduction by 1/2 for filing by small entity, if applicable. -				\$			
SUBTOTAL =				\$860.00			
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 month from the earliest claimed priority date (37 CFR 1.492(f)). +				\$			
TOTAL NATIONAL FEE =				\$860.00			
				Amount to be refunded	\$		
				Charged	\$		


a. ☒ Check No. 114032 in the amount of \$860.00 to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. _____ in the amount of \$_____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Director is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Deposit Account No. 15-0461. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:
 OLIFF & BERRIDGE, PLC
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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Marko TURPEINEN, Jukka MAUNO,
Jorma MIETTINEN, Raimo MAKILA,
Jaakko NIEMINEN, Timo SAARI

Application No.: U.S. National Stage
of PCT/FI99/00462

Filed: November 27, 2000

Docket No.: 107962

For: COMBINING SERVICES IN AN INTERNET-TYPE NETWORK

PRELIMINARY AMENDMENT

Director of the U.S. Patent and Trademark Office
Washington, D. C. 20231

Sir:

Prior to initial examination, please amend the above-identified application as follows:

IN THE CLAIMS:

Please amend claims 3, 5, 6 and 9 as follows:

Claim 3, line 1, change "claim 1 or 2," to -- claim 1, --.

Claim 5, line 1, change "any one of the preceding claims," to -- claim 1, --.

Claim 6, line 1, change "any one of the preceding claims," to -- claim 1, --.

Claim 9, line 1, change "claim 7 or 8," to -- claim 7, --.

Please add claims 11 and 12 as follows:

-- 11. A method according to claim 2, characterized in that in the step of service customization, the client (C) is prevented (4, 5) from accessing some of the available services of the second server (CP). --

-- 12. An arrangement according to claim 8, characterized in that it also includes means, preferably a database (DB) connected functionally to the second server, for preventing the client (C) from accessing some of the available services of the second server (CP). --

REMARKS

Claims 1-12 are pending. By this Preliminary Amendment claims 3, 5, 6 and 9 are amended and claims 11 and 12 are added to eliminate multiple dependencies. Prompt and favorable examination on the merits is solicited.

Respectfully submitted,



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<p>DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461</p>
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COMBINING SERVICES IN AN INTERNET-TYPE NETWORK

BACKGROUND OF THE INVENTION

The invention relates to a method and equipment for combining
5 services of especially different types in an Internet-type network.

In the present application, 'Internet' must be interpreted broadly to
refer to a network covering a large geographical area and/or a plurality of
users. Particularly, the purpose is not to exclude restricted subnetworks of the
actual Internet, called Intranet, Extranet etc. 'Client' (C) refers to a user of the
10 services or to a user computer. A client may be an actual person or a process
operating in a computer, such as a search robot. 'Page' is an abbreviation of a
World Wide Web page. The primary field of use of the invention is the
combination of different types of services such that the first services are more
technical than the second services, which are in turn more entertainment-
15 oriented than the first services. A producer of a technical service is called a
'service provider' (SP), and a producer of a more entertainment-oriented
service is called a 'content provider' (CP). Also the corresponding servers are
referred to by these terms. It should be remembered, however, that the
division between technical and entertainment-oriented services is only a
20 concrete example intended to illustrate the invention, and that entertainment-
oriented services may typically include facts and news.

The Internet has become a new tool for companies for providing
services. Marketing and distribution of services through the Internet are
increasing very rapidly. On the other hand, companies must make significant
25 investments to maintain the technical quality, content and style of their
services at least on the same level as their competitors. It is a problem in
many companies that after the initial enthusiasm wears off, there are not
enough resources for developing the Web site.

The Web site of Microsoft is an example of a well-designed service
30 package. On the same home page it is possible to find both technical services,
such as help in problem situations and downloading of new software updates,
and entertaining services, such as news. A problem is, however, that no other
company has similar resources for providing different types of services.

Smaller companies have tried to solve this problem, for example,
35 such that a service provider supplements his pages with links to the services
of a content provider. A problem with this method is that the service provider

cannot control what a client sees on the pages of the content provider. For example, the service provider cannot prevent the client from seeing advertisements of competing companies. The content provider may even sell the identification data of the client to the companies whose advertisements the client has seen. Correspondingly, the problem for the client is that a jump via a permanent link to the web site of the content provider produces the same page for all the clients instead of customization of the page according to the client's personal preferences. Locating a relevant service or data takes up a great deal of the client's time and consumes the resources of the telecommunication system.

'Profile' refers to the part of the client data that is transmitted to the other server and used by this server to customize the service. The profile may comprise, for example, the following data (from general to detailed): the client has shares, the client has shares of a car company, the client has shares of a certain company, or the client has a stock portfolio with a specific content.

BRIEF DESCRIPTION OF THE INVENTION

The purpose of the invention is to develop a method and equipment implementing the method so that the aforementioned problems can be solved, in other words a service can be customized according to the needs and/or interests of a client. The objects of the invention are achieved with a method and a system which are characterized by what is disclosed in the independent claims. The preferred embodiments of the invention are disclosed in the dependent claims.

The invention is based on combining at least two different servers or server processes. A server of a service provider SP is called a first server and a server of a content provider CP is called a second server. A client contacts the first server via an Internet-type telecommunication network and gives the server his identification data, such as client identity and/or password. The client is directed to another server, which produces services for the client. The first server transmits the client's profile data to the second server, which adapts its services according to the client's profile data and/or the identity of the first server. The client identification data is preferably concealed from the second server. In the service-adaptive stage, the client may be prevented from accessing some of the services of the second server, for example based on the identification data of the first server. The services that are primarily offered to the client may be selected from the services provided by the second server

based on the profile data. In this manner, it is, for example, possible to prevent the administrator of the first server from directing the client to see competing advertisements or services.

The method and system according to the invention have an advantage that the technical service provider does not have to use his time and resources to provide content, and vice versa. The content provider is able to distribute its services via several technical servers. With one contact the client receives customized service, for example data or news that is of current interest to the client. Since the client does not have to specifically look for the data that interests him, the invention saves the resources of the telecommunication system. The invention can be implemented with known devices by means of rather simple changes in software.

BRIEF DESCRIPTION OF THE FIGURES

In the following, the invention will be described in greater detail in connection with preferred embodiments and with reference to the accompanying drawing, in which

Figure 1 is a block and signalling diagram illustrating the invention,

Figure 2 shows the operation of a service provider SP, and

Figure 3 shows the operation of a content provider CP.

DETAILED DESCRIPTION OF THE INVENTION

Figure 1 shows equipment according to a preferred embodiment of the invention and the operation thereof. In step 1, a client C activates with his computer a browser. The computer sets up a connection to the server of a service provider SP via the Internet under the control of the browser. From the point of view of the invention it does not matter whether the client's connection to the Internet is fixed or set up via a switched telephone network. The server of the service provider SP usually identifies the client such that the client has a client identity CID and a password PW. Other means of identification include the use of a smart card or callback. The relationship between the SP and the client is usually confidential. The 'client profile' PR (CID) refers below to the part of the client data that is transmitted to the server of a content provider CP. A good example of a content provider CP is a media company, such as a newspaper publisher. Assume that the service provider, for example a bank, manages the client's stock portfolio. The bank knows the client's identity and the contents of the portfolio. Outsiders are not allowed to know at least the

specific content of a certain client's stock portfolio. In this case, the client profile may be, for example, information that the client has shares of certain companies.

Assume also that the client C owns shares of Car Factory Ltd and is
5 interested in news concerning the company. A user interface provided by the SP may be, for example, such that the content of the stock portfolio is shown as a listing where the name of each share is also a link to the server of the CP. The client thus activates the link to Car Factory Ltd (for example by clicking the company name). The server of the SP then transmits to the server of the CP a
10 service request which preferably contains:

- the identity of the server SP
- the client identity
- the client profile
- service control data.

15 Control data refers to, for example, communication between the SP and the CP related to different manners of customizing the service. For example, the clients may be divided into different types and the code of the client type can be transmitted in the form of control data. In step 2, according to a preferred embodiment of the invention the service request is not
20 transmitted directly from the SP to the CP, but there is between them an encryption function, which is represented in Figure 1 by a separate server called 'profile proxy' PP. The encryption function may also be a separate function in the server of the SP, for example. The purpose of the encryption function is to convert the identity and/or profile data of the client into such a
25 form that the CP cannot recognize the client's identity if the service in question is anonymous. An anonymous service means a service of the CP which does not require user identification. In some services of the content provider, the client is identified, for example, by means of user identity, in which case the client does not use the service as an anonymous user. An example of such
30 services is real-time data on the stock exchange which can only be accessed by those with valid service subscription. By means of the encryption function, information about the client's identity is only limited to the company whose server the client has contacted. The advantage of the encryption function to the client is, for example, that the client is able to contact the server of a
35 content provider without the CP coming to know the client's identity. The identity of the client is only known to the service provider (in this case the

bank) whose server the client has contacted first. If the client trusts the bank, he may safely browse through advertisements, for example, without fear of becoming a target of aggressive marketing.

The content provider may combine the received client profile with its own profile data, if the use of the content requires client identification. When the client is identified in the service of both the SP and the CP, the latter is also able to use its own client profile data in the service customization and to combine the profile data received from the SP with its own profile data. The CP may already know, for example, the fields of activity the client is interested in. The SP transmits the names of the companies in the stock portfolio together with the client's profile data. The CP is then able to combine the information on the fields of activity and the names of the listed companies for the purpose of customization of content without finding out the client identity used by the service provider.

Another alternative is that a service which normally requires user identification can be provided to the clients of the service provider as a service that is anonymous with respect to the content provider. In this case, the SP in a way treats its clients to the service. For example a stock exchange service, which is normally liable to charge and requires a user identity, may be used by the clients of the SP without any extra charge and user identification when the search comes to the CP via the encryption function PP. Thus the CP will not be able to find out the client's identity. The encryption function can be described by means of a conversion function f:

$$CID \rightarrow f(CID) = CID'$$

wherein the apostrophe means that the data has been converted with the conversion function f. In addition to concealing the client identity CID, it may be preferable to filter or distort the profile data PR(CID) transmitted to the CP. In the case of the stock portfolio, this may be carried out such that the detailed content of the portfolio is not transmitted to the CP but, for example, the exact number of the shares is converted into size ranges or omitted completely. PR'(CID') refers to a client profile distorted in such a manner.

In step 3, the content provider receives a search request where the client data is preferably concealed and/or distorted. Next, the CP provides the clients with customized media content. The customization may include one or more of the following steps. The client may see, for example, news concerning companies that interest him, either companies mentioned in the profile data (in

this case Car Factory Ltd) or companies that operate in the same general field. On the basis of the identity of the SP, news can be selected for the client from the field in question (in this case for example financial news and news of the stock exchange).

5 In steps 4 and 5, according to another preferred embodiment of the invention the customization of the media content also includes that the CP filters off the advertisements competing with the SP, in other words it prevents the client from seeing these advertisements. This takes place by means of a database DB, for example. In the database, each service provider with which
10 the content provider has a co-operation agreement is assigned a list of the companies whose advertisements are filtered off when the client arrives at the CP server from the server of this SP. Alternatively, it is possible that a list of the companies whose advertisements are allowed is obtained from the database when the client arrives at the CP server from the server of the SP in
15 question. In step 6, the CP forms a service that is customized according to the client's needs.

By means of the functionality described so far, the invention solves the problems described in the introduction, in other words service customization and limiting the client identity to the company whose server the
20 client has contacted. According to yet another preferred embodiment, the invention is complemented such that in step 7 the content provider returns to the service provider usage information UI'(CID') and/or profile conversion data $\Delta PR(CID')$. In the present application, usage information refers to unprocessed data, such as log data. It may include a complete path of the pages of the CP
25 the client has visited and possibly the time spent on each page. Correspondingly, the profile conversion data is data processed from the usage information.

When the client uses services of the CP, he makes choices which may shape the user profile. Some of the choices are of interest to the SP. The
30 SP and the CP may come to an agreement about exchanging such data. For example, in a stock exchange service the client has indicated his interest in certain fields of activity and the SP and the CP have agreed on exchange of this data. However, the client now changes his interests by selecting new fields of activity and deleting some of the earlier choices. This profile
35 conversion data is transmitted from the CP to the SP.

Assume that the service provider directs the client to the server of the CP and the profile data PR indicates that the client is interested in news related to the stock exchange, car industry or a certain car factory. The client finds from the CP server also other interesting things, for example he spends a considerable amount of time in the section of holiday houses, maybe houses in a certain area or of a certain size/price. In such a case, the profile conversion data includes corresponding information about the client's other interests.

When the encryption function PP is used, the usage information UI' and the profile conversion data $\Delta PR'$ are reconverted or the encryption is decrypted with an inverse conversion function f^{-1} :

$$UI(CID) = f^{-1}(UI'(CID'))$$

In step 8, the usage information UI and/or the profile conversion data ΔPR is transmitted to the SP in a form the SP understands. The usage information may contain data of the services the client has used in the SP server. The SP may supplement its client register on the basis of this data. Alternatively or in addition, the CP may return to the SP profile conversion data ΔPR that has already been processed.

The encryption function f and the decryption function f^{-1} are implemented most suitably by means of symmetrical encryption, which is presented as $f_{key}^{-1}(f_{key}(x)) = x$, wherein 'key' is the encryption key as well as the decryption key. According to yet another preferred embodiment, the converted identification data of the client is intended for a single use, which means that the client always appears as a new client to the CP, so that the data about the client's areas of interests is only limited to the company whose server the client has contacted himself.

Figures 2 and 3 illustrate the operation according to a preferred embodiment of the invention from the point of view of the SP and the CP, respectively. In step 21 of Figure 2, the service provider identifies the client and determines the client identity CID and the client profile PR(CID). In step 22, this data is transmitted to the CP in an encrypted form, for example by means of transmission via the encryption function PP. In step 23, when the client has terminated the use of the CP, the SP receives unprocessed usage information UI or preferably processed profile conversion data ΔPR . In step 24, the SP updates the client profile PR(CID).

In step 31 of Figure 3, the CP receives from the SP the client identity CID' and the client profile PR'(CID'). In step 32, the CP forms a service customized according to the client's needs. Service customization may include selecting facts, news and/or advertisements on the basis of the profile data and/or the identity of the SP. Usage information indicating, for example, how long the client has been on each page is maintained simultaneously. When the client terminates the use of the CP server, in step 34 the usage information is processed into profile conversion data ΔPR . (If the CP does not perform this in a centralized manner, each SP must carry it out separately in step 24). In step 35, the CP transmits the profile conversion data ΔPR to the SP.

It is obvious for a person skilled in the art that the basic idea of the invention can be implemented in several different manners. In the embodiment described above, the functions SP, PP and CP are provided in different servers which communicate together via the Internet. This is not necessary, but some or all of these functions can be regarded as different processes of one and the same server. This common server is controlled by an external unit which is neither the SP nor the CP. Even though the functions are situated at the different servers SP, PP and CP, they may communicate with each other for example via a local area network. The invention and the embodiments thereof are thus not restricted to the examples described above, but they may vary within the scope of the claims.

CLAIMS

1. A method of combining two different services, in which method:
 - a client (C) contacts (1) a first server (SP) via an Internet-type
- 5 telecommunication network and provides the server with identification data (CID, PW) of the client;
 - the client (C) is forwarded (2) from the first server (SP) to a second server (CP), which provides services (6) to the client (C);

characterized in that
- 10
 - the first server (SP) transmits to the second server (CP) the client's profile data (PR(CID)); and
 - the second server (CP) customizes (4, 5) the services provided for the client (C) according to the client's profile data (PR(CID)) and/or the identity of the first server (SP).
- 15 2. A method according to claim 1, **characterized** in that before the client is directed to the second server (CP), the client's identification data (CID) is concealed (3) from the second server.
3. A method according to claim 1 or 2, **characterized** in that in the step of service customization, the client (C) is prevented (4, 5) from
- 20 accessing some of the available services of the second server (CP).
4. A method according to claim 3, **characterized** in that said prevention is based on the identification data of the first server (SP).
5. A method according to any one of the preceding claims, **characterized** in that in the service customization the services that are to be
- 25 offered primarily to the client are selected from the available services of the second server (CP) on the basis of said profile data PR(CID).
6. A method according to any one of the preceding claims, **characterized** in that the second server (CP) transmits to the first server (SP) data (7, 8) about the services the client (C) has selected from the second
- 30 server and it preferably processes said data (7, 8) in order to form profile conversion data (Δ PR).
7. An arrangement for combining two different services, comprising:
 - a second server (CP) arranged to provide services (6) to a client (C); and

- a first server (SP) arranged to receive from the client (C) his identification data (CID, PW) via an Internet-type telecommunication network and to forward the client (C) to the second server (CP);

characterized in that

5 - the first server (SP) is arranged to transmit the client's profile data (PR(CID)) to the second server (CP); and

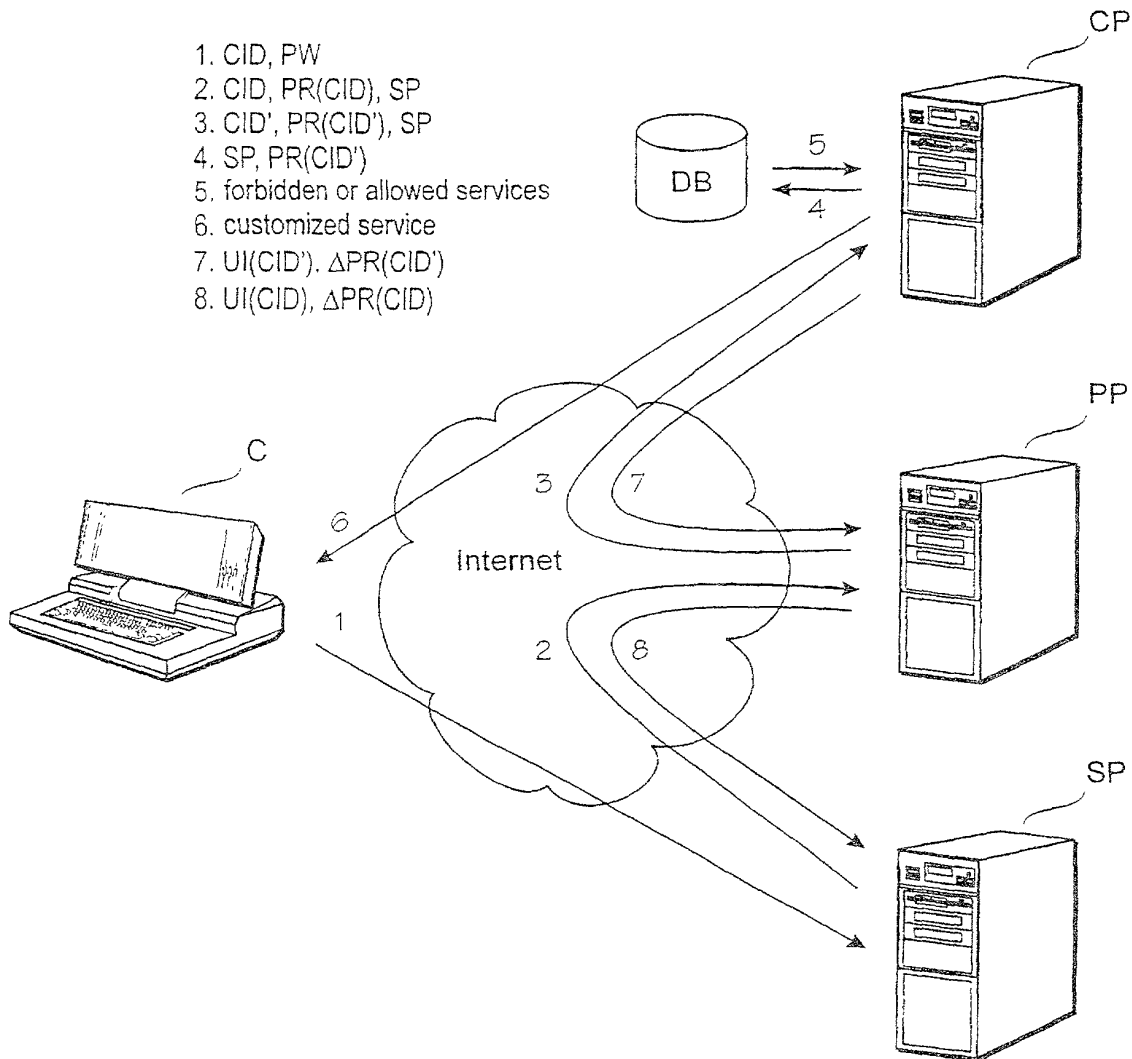
- the second server (CP) is arranged to customize the services produced for the client (C) according to the client's profile data (PR(CID)) and/or the identity of the first server (SP).

10 8. An arrangement according to claim 7, **characterized** in that it also includes an encryption function (PP) for concealing the client identification data from the second server (CP).

15 9. An arrangement according to claim 7 or 8, **characterized** in that it also includes means, preferably a database (DB) connected functionally to the second server, for preventing the client (C) from accessing some of the available services of the second server (CP).

20 10. A server (CP) for producing services (6) to a client (C) via an Internet-type telecommunication network, **characterized** in that the server (CP) is arranged to receive from another server (SP, PP) the client's identification and/or profile data (2, 3) and to customize the services produced for the client (C) according to the client's identification and/or profile data (2, 3) and/or the identity of said other server (SP).

Fig. 1



2/2

Fig. 2

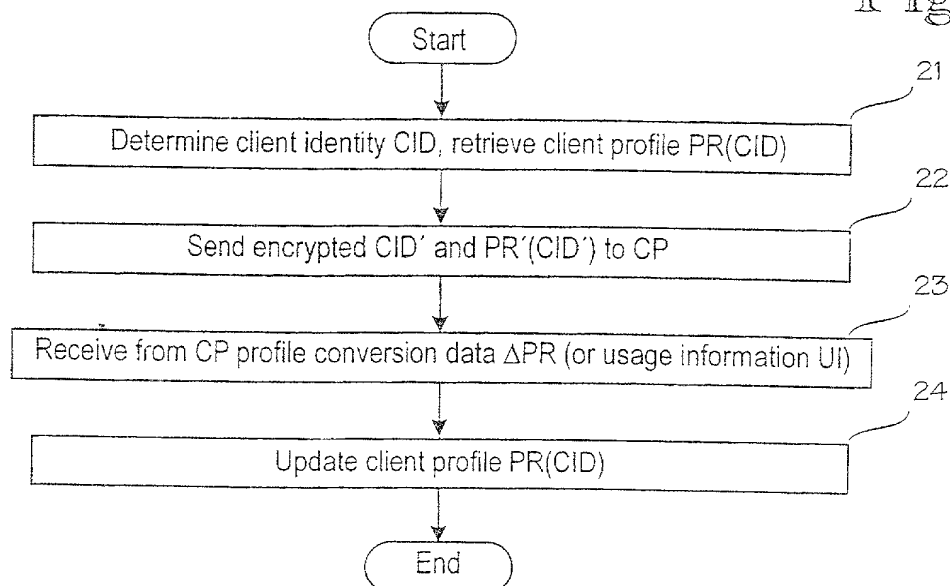
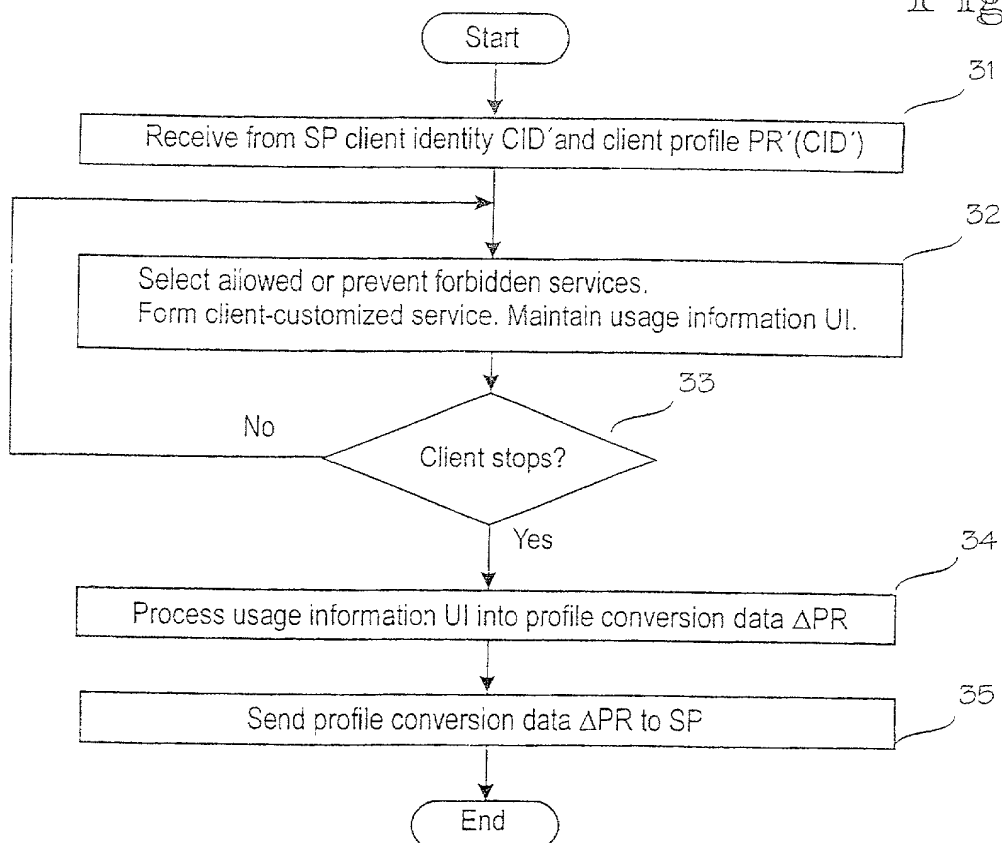


Fig. 3



#3

UNDER 35 USC §371(c)(4) FOR
PCT APPLICATION FOR UNITED STATES PATENT

As a below named inventor, I hereby declare that
my residence, post office address and citizenship are as stated below under my name:

I verily believe I am the original, first and sole inventor (if only one name is listed below) or an original,
first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a
patent is sought, namely the invention entitled:

COMBINING SERVICES IN AN INTERNET-TYPE NETWORK

described and claimed in international application number PCT/FI99/00462 filed on 27 May 1999

I have reviewed and understand the contents of the above-identified specification, including the claims, as
amended by any amendment referred to above.

I acknowledge the duty to disclose to the Office all information known to me to be material to
patentability as defined in Title 37, Code of Federal Regulations §1.56.

Under Title 35, U.S. Code §119, the priority benefits of the following foreign application(s) filed by me or
my legal representatives or assigns within one year prior to my international application are hereby claimed:

Finland Patent Application no. FI-981214 filed on 29 May 1998

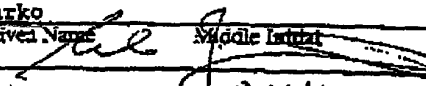
The following application(s) for patent or inventor's certificate on this invention were filed in countries
foreign to the United States of America either (a) more than one year prior to my international application, or (b)
before the filing date of the above-named foreign priority application(s):

I hereby appoint the following as my attorneys of record with full power of substitution and revocation to
present this application and to transact all business in the Patent Office:

James A. Oliff, Reg. No. 37,075; William P. Berridge, Reg. No. 30,024;
Kirk M. Hudson, Reg. No. 27,562; Thomas J. Pardini, Reg. No. 30,411;
Edward P. Walker, Reg. No. 31,450; Robert A. Miller, Reg. No. 32,771;
Mario A. Costantino, Reg. No. 33,565; and Stephen J. Roe, Reg. No. 34,463.

ALL CORRESPONDENCE IN CONNECTION WITH THIS APPLICATION SHOULD BE SENT TO OLIFF &
BERRIDGE, P.L.C. P.O. BOX 19929, ALEXANDRIA, VIRGINIA 22320, TELEPHONE (703) 336-6400.

I hereby declare that I have reviewed and understand the contents of this Declaration, and that all
statements made herein of my own knowledge are true and that all statements made on information and belief are
believed to be true; and further that these statements were made with the knowledge that willful false statements
and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United
States Code and that such willful false statements may jeopardize the validity of the application or any patent issued
thereon.

1 *Typewritten Full Name*
of Sole or First Inventor Marko Turpeinen
Given Name Middle Initial Family Name
2 *Inventor's Signature* 
3 *Date of Signature* Nov. 24 2000
Month Day Year
Residence: Espoo City Finland Country
Citizenship: Finnish State or Province
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Note to Inventor: Please sign name on line 2 exactly as it appears in line 1 and insert the actual date of
signing on line 3.

IF THERE IS MORE THAN ONE INVENTOR USE PAGE 2 AND PLACE AN "X" HERE ☒

0051210210260

100

200
1 Typewritten Full Name

of Second Joint Inventor (if any)

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Matti...

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3 **Date of Signature:

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3

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Month

Day

Year

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Family Name

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Month

Day

Year

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500
1 Typewritten Full Name

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Nieminen

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3 **Date of Signature:

Nov

24

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Day

Year

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City

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Country

Citizenship:

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including country)

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If there is more than one inventor use page 3 and place an "x" here

X

6-00
1
Typewritten Full Name
of sixth Joint Inventor (if any)

Time

Saari

2 **Inventor's Signature:

3 **Date of Signature:

Month

Day

Year

Residence:

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2 **Inventor's Signature:

3 **Date of Signature:

Month

Day

Year

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mailing address,
including country)

1 Typewritten Full Name
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2 **Inventor's Signature:

3 **Date of Signature:

Month

Day

Year

Residence:

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State or Province

Country

Citizenship:

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mailing address,
including country)

1 Typewritten Full Name
of Fifth Joint Inventor (if any)

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Middle Initial

Family Name

2 **Inventor's Signature:

3 **Date of Signature:

Month

Day

Year

Residence:

City

State or Province

Country

Citizenship:

Post Office Address:

(Insert complete
mailing address,
including country)

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